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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/078,348	02/21/2002	Chang-Hum Lee	P56620	6091

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EXAMINER	
WARD, AARON S	

ART UNIT	PAPER NUMBER
2675	7

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/078,348	LEE, CHANG-HUM	
	Examiner	Art Unit	
	Aaron S. Ward	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata (JP06034946, already of record) in view of Lee (U.S. Patent No. 5,818,172, already of record).

As to claims 1, 13 and 14, Shibata teaches a system for providing backlight brightness control based on a contrast sensing part (automatic modulated light circuit, paragraph 0014) for sensing contrast of a video signal displayed on an LCD panel making a computer screen easy to see while reducing power consumption (constitution). The contrast sensing part controls the brightness/darkness of the backlight (paragraph 0016).

Shibata does not specifically teach that the contrast sensing part outputs a PWM signal, or that the system specifically includes a DC/AC inverter, a DC converter, a voltage controller, or a controller.

Lee teaches a back light circuit for an LCD 14 (Fig. 3) of a portable computer, including a direct current to alternating current (DC/AC) inverter 3 to power the back light 4, a DC converter 2 for converting a PWM signal into a DC signal, a voltage controller 7 provided between the DC converter 2 and the DC/AC inverter 3 for providing the DC converter signal to

an operating voltage of the inverter 3, and a controller 6 connected to sense the DC/AC inverter 3 for controlling the voltage controller 7 based on the inverter 3. Lee also teaches outputting a pulse width modulation (PWM) signal (col. 3, line 5).

It would have been obvious to combine the teaching of Shibata and Lee, because both teach a back light control units for reducing power consumption by controlling brightness of the backlight. One of ordinary skill in the art would have been motivated to combine the teachings because Shibata teaches a backlight control system which includes the use of a contrast sensing part that controls the brightness/darkness (i.e., the contrast sensing part controls On/Off) of a backlight (paragraph 0016), and Lee teaches a backlight control circuit which uses an On/Off Controller 5 (Fig. 3) which controls the On/Off of a backlight. The Shibata contrast part performs as the On/Off Controller 5 of Lee providing the motivation for one of ordinary skill to utilize the Lee circuit to embody the Shibata system.

As to claims 2 and 15, Lee illustrates in Figure 3 the controller 6 connected to the DC/AC inverter 3. Furthermore, as explained above, the contrast sensing part is connected to the DC converter 2, which is connected to the voltage controller 7, which is connected to the DC/AC inverter 3 via controller 6. Therefore the contrast sensing part is connected to the DC/AC inverter 3 via the DC converter 2 and voltage controller 7.

3. Claims 5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata and Lee in view of Koenck et al. (U.S. Patent No. 5,818,553, already of record).

As to claim 5, Shibata teaches a method for providing backlight brightness control based on a contrast sensing part (automatic modulated light circuit, paragraph 0014) for sensing

contrast of a video signal displayed on an LCD panel making a computer screen easy to see while reducing power consumption (constitution). The contrast sensing part controls the brightness/darkness of the backlight (paragraph 0016).

Shibata does not specifically teach that the contrast sensing part is connected to the LCD panel, or that the method specifically includes sensing an operating voltage of a DC/AC inverter, obtaining a contrast sensing part control signal, converting the backlight control signal by a DC converter, controlling the DC signal for the inverter by a voltage controller, or supplying the controlled DC signal by a controller as a DC operating voltage.

Connecting the contrast sensing part to the LCD panel is an obvious design choice, as evidenced by Koenck et al. (Fig. 3 illustrating contrast sensor 24 connected to the LCD 26, 28, 30, 34; col. 2 lines 36-54). It would be obvious to combine the teaching of Shibata and Lee because both are directed to contrast control of backlit LCDs.

Lee teaches a back light circuit for an LCD 14 (Fig. 3) of a portable computer, including a direct current to alternating current (DC/AC) inverter 3 to power the back light 4, a DC converter 2 for converting a PWM signal into a DC signal, a voltage controller 7 provided between the DC converter 2 and the DC/AC inverter 3 for providing the DC converter signal to an operating voltage of the inverter 3, and a controller 6 connected to sense the DC/AC inverter 3 for controlling the voltage controller 7 based on the inverter 3.

It would have been obvious to combine the teaching of Shibata and Lee, because both teach a back light control units for reducing power consumption by controlling brightness of the backlight. One of ordinary skill in the art would have been motivated to combine the teachings because Shibata teaches a backlight control system which includes the use of a contrast sensing

part that controls the brightness/darkness (i.e., the contrast sensing part controls On/Off) of a backlight (paragraph 0016), and Lee teaches a backlight control circuit which uses an On/Off Controller 5 (Fig. 3) which controls the On/Off of a backlight. The Shibata contrast part performs as the On/Off Controller 5 of Lee providing the motivation for one of ordinary skill to utilize the Lee circuit to embody the Shibata system.

As to claim 12, Shibata teaches (paragraph 0011) that the contrast sensing part senses contrast of an LCD video signal.

4. Claims 3, 6-11, 16, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata and Lee/Koenck et al. as applied to claims 1, 5 and 13 above, and further in view of Helms (U.S. Patent No. 5,952,992, already of record).

The combined teaching of Shibata and Lee/Koenck et al. teaches the claimed system and method, but does not teach manual back light selection or suspending automatic back light control.

Helms teaches an intelligent LCD brightness control system wherein "user-selection of a different brightness level, either higher or lower, will override the automatic brightness control setting" (abstract).

It would have been obvious for one of ordinary skill in the art to combine the teaching of the Helms user-selection and automatic override with the system and method taught by Shibata and Lee/Koenck et al., because manual control of LCD brightness is desired and expected by the end-user, as is known in the art of computer displays.

5. Claims 4, 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata, Lee/Koenck et al. and Helms as applied to claim 1-3, 5-16, 18 and 19 above, and further in view of Saito et al. (U.S. Patent No. 5,315,695, already of record).

The combined teaching of Shibata, Lee/Koenck et al. and Helms teaches the claimed system and method recited in claims 4, 17 and 20, but does not specifically teach that the back light manual control is included in a keyboard.

Saito et al. is directed to a personal computer with an LCD display and back light wherein the display back light luminance can be altered through key operation.

It would have been obvious for one of ordinary skill in the art to modify the combined teaching of Shibata, Lee/Koenck et al. and Helms with that of Saito et al., because utilizing the existing keyboard would contribute to space-savings on the portable computer device, by eliminating a dedicated brightness control knob, and it is desirable for portable computers to be compact and space-saving.

Response to Arguments

6. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron S. Ward whose telephone number is (703) 305-8992. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven J. Saras can be reached on (703) 305-9720. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ASW

STEVEN SARAS
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